Comment from the State of Arkansas

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In response to your request for comments transmitted in STP-01-017, dated March 7, 2001, the following information is provided:

1. State and local governments must be involved in the proposed rulemaking process.

2. The NRC must consider State authority and law to regulate the eventual disposal of low level radioactive waste after the "entombment" period. Preemption of State authority must be considered. Future low-level radioactive waste requirements may be "more" or "less" stringent, and adequate decommissioning funds must be assured.

3. Public acceptance of the "entombment" by local residents must be considered. The "entombment" may no longer be considered an asset by the local community.

4. The NRC must consider requirements for perpetual care of the facility, as well as the continuation of the operational environmental programs. Continued interface with State authorities and the exchange of monitoring data must be assured during the "entombment" period.

5. State and local governments must be notified of events affecting the "entombment," particularly any inadvertent releases of radioactive material. Appropriate response actions must be assured.

6. Funding of State and local government continuing activities for the "entombment" period must be assured.

Please contact me if you have questions.

David D. Snellings, Jr., CHP, Director
Division of Radiation Control and Emergency Management
Arkansas Department of Health
501.661.2301

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials
Bureau of Radiation & Hazardous Site Management, Room 460
50 Wolf Road, Albany, New York 12233-7252
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Erin M. Crotty
Commissioner

APR 19 2001

Ms. Stephanie Bush-Goddard
Division of Industrial and Medical Nuclear Safety
Office of Nuclear Material Safety and Safeguards
Washington, DC 20555

Dear Ms. Bush-Goddard:

Re: ANPR Entombment Options for Power Reactors (STP-01-017)

Thank you for the opportunity to review the Nuclear Regulatory Commission's Advanced Notice of Proposed Rulemaking (ANPR) and the draft rulemaking plan, "Entombment Options for Power Reactors." Several of my staff have reviewed the ANPR, the draft rulemaking plan, SECY-00-0129 and transcripts of the "Workshop for Entombment Options for Power Reactors" held on December 14-15, 1999. We have general comments followed by specific comments which address the questions set forth in the ANPR. I have included these comments as a separate enclosure.

In general, we are opposed to any new NRC rulemaking that would specifically provide for entombment (in situ disposal) of low-level radioactive waste (LLRW) or greater than Class C waste (GTCC) at reactor sites in New York State. Prior to adopting any entombment rulemaking, the Nuclear Regulatory Commission (NRC) must prepare a supplemental environmental impact statement pursuant to the National Environmental Policy Act (NEPA, PL 91-190). It is unclear if "entombment" of nuclear plants aboveground would not be considered segmentation under NEPA - postponing the ultimate disposal of radioactive wastes to an uncertain future date.

New York State's regulations do not provide for the disposal of GTCC waste within the State. Furthermore, State regulations do not permit the disposal of LLRW in any100-year floodplains, coastal high hazard areas or wetlands. Also, they do not permit disposal in any areas subject to our New York State Wild, Scenic and Recreational River Systems Regulations. In addition, our seismic-siting criteria for a LLRW disposal site would exclude some nuclear power plant sites.

It is our contention that any anticipated NRC rulemaking that provides for in situ disposal of LLRW at nuclear power reactors is contrary to the intent of the Nuclear Waste Policy Act and if implemented, will adversely impact the financial viability of existing or planned LLRW disposal facilities and state compacts.

Based on our review of this ANPR and supporting documents, this Department would recommend that the NRC choose option "number 1" in the Rulemaking Plan and not undertake any new rulemaking.

Thank you for this opportunity to comment.

Sincerely,

Paul J. Merges, Ph.D.
Director
Bureau of Radiation & Hazardous Site Mgt.

Enclosure

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Enclosure

NYS Department of Environmental Conservation
Division of Solid & Hazardous Materials
Bureau of Radiation & Hazardous Site Management

Comments
On ANPR and Supporting Documents
April 20, 2001

General Comments

Prohibitions on Disposal

The State of New York was actively involved in the siting of a low-level radioactive waste (LLRW) disposal facility during the late 1980's and early 1990's. The New York State Department of Environmental Conservation (NYSDEC) was charged with developing and promulgating regulations which regulate the siting, certification of proposed sites and disposal methods (6 NYCRR Part 382) and the design, construction, operation, closure, post closure and institutional control of such facilities (6 NYCRR Part 383). These regulations were written to be at least as stringent as those found in 10 CFR Part 61. Consistent with that United States Nuclear Regulatory Commission (NRC) rule, our State regulations prohibit the disposal of LLRW in any 100-year floodplains, coastal high hazard areas, and wetlands. Our regulations also prohibit the siting of a disposal facility in any areas subject to the New York State Wild, Scenic and Recreational River Systems Regulations. Most, if not all, of the nuclear power plants in New York State would be located in one or more of these areas. Therefore, entombment, or on-site disposal, of LLRW in those areas would not be permitted.

In addition, our regulations do not provide for the disposal of greater than Class C waste (GTCC) in land disposal facilities and our requirements for concentration averaging are such that this waste would be difficult to reclassify as Class C. GTCC waste is the responsibility of the United States Department of Energy and must be disposed of at a HLW repository. Therefore, entombment of GTCC would not be permitted in New York State.

Impact on the Spirit and Intent of the Nuclear Waste Policy Act

If nuclear power plants implement the entombment option for plant decommissioning in states that do not prohibit such disposal, existing or future LLRW disposal sites may lose a significant portion of their anticipated waste stream. Such a significant loss in waste volume may threaten the economic viability of existing LLRW disposal facilities or preclude the development of any new ones. Should this happen, non-nuclear power plant LLRW generators such as hospitals, universities, state governments and industry may not have an option for waste disposal.

Responsibility for Long-Term Monitoring, Maintenance and Institutional Control

It is unclear what third party (state government, local municipality, other) would be willing to assume the imposing responsibility for the long-term monitoring, maintenance and institutional control required after license termination. It is uncertain whether the licensee would be capable or willing to provide sufficient financial surety that could meet the requirements of NYSDEC's Financial Assurance Requirements (6 NYCRR Subpart 383-6). These regulations require adequate financial assurance to cover the costs for closure, and monitoring and maintenance for the post-closure and institutional control periods. The institutional control period can be no less than 100 years. Would the Federal Government be willing to accept this responsibility in the absence of any other entity? It is also unclear what financial incentives or other offsets could be offered to the community to fully compensate them for hosting a de facto LLRW disposal facility.

Mixed Waste & Hazardous Waste

The United States Environmental Protection Agency's requirements that regulate the disposal of mixed waste and hazardous waste are somewhat different from the NRC's requirements for waste disposal. This important issue was not addressed in the Advance Notice of Proposed Rulemaking (ANPR), the Rulemaking Plan, or the entombment viability study.

Public Reaction

Many states, including New York State, have faced substantial public and political opposition in siting a LLRW disposal facility. This has occurred even though our state requirements (and those of other states) are more stringent than those expressed in 10 CFR 61 and have numerous requirements to ensure the health and safety of local residents.

In light of this, the NRC will face a difficult challenge in adequately explaining to the public the perceived disconnect between the disposal facility siting and waste requirements in 10 CFR 61 and the new proposed rulemaking allowing in-situ disposal (entombment) of LLRW and GTCC waste in geological and geographical sites previously declared unsuitable and unacceptable.

Specific Comments

A. Rulemaking Options

A.1 Does the existing 10 CFR 50.82(a)(3) provide an adequate basis to allow periods of entombment beyond 60 years.

The existing 10 CFR 50.82(a)(3) does provide an adequate basis to allow periods of entombment in excess of 60 years, provided Commission approval has been granted and only

when necessary to protect public health and safety. This regulation should not be changed, as the 60-year decommissioning timetable places a reasonable upper bound on the time that will be allowed to complete decommissioning. Special action by the Commission should be required if the licensee cannot complete decommissioning within 60 years.

Although much of the discussion in the ANPR details the viability of entombment as a decommissioning alternative, the necessity to implement entombment to protect public health and safety is not addressed. Despite the point made on page eight of the ANPR that, "this (entombment) would result in resource savings for the NRC and licensee," no other benefit to the public, and no benefit due to public health and safety consideration, is mentioned.

Table 1 of Attachment 2, the Richard Smith and Steven Short study from PNNL in May of 1999, shows a projected decrease from 803 person-rem from immediate ENTOMB to 311 person-rem for Delayed ENTOMB. SAFSTOR1 was evaluated to result in 319 person-rem, required institutional control for only 60 years, and cost only 58% of what Delayed ENTOMB cost. The decommissioning worker doses are less for Delayed ENTOMB, but not significantly from the SAFESTOR1 alternative evaluated in this study.

A.2 Is the license termination rule 10 CFR Part 20, Subpart E, adequate to achieve license termination using an entombment approach?

Yes. There is nothing particular in Subpart E that favors one decommissioning alternative over any other. It allows for unrestricted and restricted uses of property following decommissioning. It does not specify in what manner decommissioning must be completed, or when the radiological criteria for license termination must be met.

One element in Subpart E could present a significant, but not insurmountable, obstacle to entombment, if the reactor is decommissioned under restricted conditions. 10 CFR 20.1403(d)(1)(i)(C) specifies that licensees proposing to decommission by restricting use of the site shall seek advice from affected parties regarding whether the institutional controls will impose undue burdens on the local community or other affected parties. Entombment may present unacceptable burdens on the local community due to a permanent waste disposal facility located within the community, undesirable aesthetic impacts, adverse impacts to waterfront revitalization programs, and the inability of the community to return the site to productive use following decommissioning.

A.3 Should entombed facilities be required to maintain some type of NRC license after the facility meets the dose criteria of the license termination rule?

Yes, but there are conflicting federal requirements. If GTCC radioactive waste will remain within the entombment, then current federal law (42 U.S.C. 2021c et seq.) requires the facility be licensed by the NRC.

Sec. 2021c. Responsibilities for disposal of low-level radioactive waste

(b)

(1) The Federal Government shall be responsible for the disposal of -

(D) any other low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the Commission for class C radioactive waste, as defined by section 61.55 of title 10, Code of Federal Regulations, as in effect on January 26, 1983.

(2) All radioactive waste designated a Federal responsibility pursuant to subparagraph (b)(1)(D) that results from activities licensed by the Nuclear Regulatory Commission under this chapter, shall be disposed of in a facility licensed by the Nuclear Regulatory Commission that the Commission determines is adequate to protect the public health and safety.

However, 10 CFR 61.55(a)(2)(iv) specifies that GTCC waste must be disposed of in a geologic repository as defined in 10 CFR Part 60, unless approved for an alternative disposal method on a case-specific basis by the Commission.

If entombment were to occur without including GTCC waste, the remaining radioactive material should still be licensed and controlled as byproduct material in accordance with 10 CFR Part 30 or LLRW in accordance with 10 CFR Part 61 and applicable State regulations.

A.4 Should a new part being considered in the regulations replace the license termination rule for purpose of entombment or should a licensee have a choice between using the license termination rule approach or the entombment facility license approach?

A new part for the purpose of entombment should not replace the license termination rule, because the license termination rule of 10 CFR Part 20 Subpart E does not specify method or time-period, only the performance-based dose limits that must be met. These limits should be utilized in all license termination cases.

A.5 Should the entombment facility option be available only to power reactors. If not, under what circumstances should it be applied to non-reactor licensees ?

No, if the entombment option is available to power reactors, then it should be made available to non-power reactors as well, since non-power reactors typically have a significantly lower radioactive source term when compared to power reactors.

Under no circumstances should entombment be applied to non-reactor licensees. A foundation of the NRC's argument in favor of the entombment alternative is the significant engineering that was invested in the reactor containment structure. Non-reactor licensees simply do not have the necessary installed structures to enable viable entombment.

A.6 Are there other options that the Commission should consider in developing an approach to entombment that will provide for its viability while maintaining the public health and safety?

In the ANPR, the authors do not consider an entombment alternative between the immediate entombment case and the 130-year delayed entombment. An alternative that works within the 60-year time frame of 10 CFR 50.82(a)(3) should also be considered (50-55 year long safe storage leading up to entombment). This option would lead to a significant drop in the decommissioning worker doses due to the decay of cobalt-60, and to a lesser extent cesium-137 decay, without attempting to reach zero dose. This alternative should be considered in this rulemaking.

Additionally, the Commission could consider the inclusion of chemically engineered barriers in addition to the mechanically engineered barriers discussed in the ANPR. Such chemical barriers could be selected to react with and chemically contain radioactive ions that otherwise might exit the entombment due to mechanical degradation and water infiltration.

Although briefly discussed in some of the supporting documents to the ANPR, the extensive use of aggressive chemical decontamination of reactor internals and electro-polishing should be required to reduce the source term remaining in the entombed waste-form.

B. Technical Feasibility Issue

B.1 To what degree should credit be given to engineered barriers for the purposes of dose reduction to meet the license termination rule of 10 CFR 20, Subpart E?

Engineered barriers are an integral part of the entombment option. To give them no credit for reducing the dose to the public would be illogical. These barriers should be given credit commensurate with the best scientific information available. Estimates of barrier integrity based on computer model predictions that include maximum undetected crack sizes, site-specific rates of corrosion, containment construction particulars, and associated parameters should be valid, as long as an estimate of the modeling uncertainty is also provided.

C. Entombment of Greater than Class C (GTCC) Waste

C.1 Should material, that could be considered GTCC waste, be considered in the entombment approach? Are there circumstances under which residual radioactivity that could be classified as GTCC be allowed to be entombed on site? If so, under what conditions.

No and no. Entombment is merely a reactor decommissioning alternative. It should not be viewed as a solution to national difficulties caused by the United States Department of Energy's inability to properly site and construct a spent nuclear fuel and/or GTCC waste repository. As mentioned in the response to question A.3, federal law currently requires GTCC

waste to be disposed of in a geologic repository, and should not be changed. New York State's regulations on concentration averaging would not allow classifying GTCC waste as Class C. Section 382.80(h)(2) states:

> The concentration of radionuclides in discrete objects (such as sealed sources, filters, and metal components containing induced radioactivity) that are encapsulated in solidification agent or matrix must be averaged over the volume of the object, not of the solidification agent or matrix.

D. State Issues

D.1 What additional role, if any, should the affected States have in the license termination process based on entombment for power reactors? Should an Agreement State be permitted to issue a license for an entombed disposal facility?

The states should be considered co-regulators in the entombment license termination process, because the envisioned process will likely rely on the state in order to be successful. Facility monitoring by a state radiation control program to measure environmental releases and verify performance of the entombment is discussed in many of the supporting documents. Some method for ensuring the funding for such a program would have to be worked out between the NRC and the state. In addition, the state can represent local community interests in the decommissioning decision-making process. Once the NRC license is terminated, Agreement States have the authority under state law to license the residual radioactive material.

D.2 What issues exist for entombment in a state where existing State legislation prohibits LLRW disposal?

In New York State, once the radioactive material was no longer controlled by an NRC license, LLRW disposal of this nature would be regulated by Title 6 of the New York Code of Rules and Regulations (6 NYCRR) Part 380, *Rules and Regulations for Prevention and Control of Environmental Pollution by Radioactive Materials*. So long as the entombed facility is licensed by the NRC, it is allowed under Subpart 380-4.1(a)(4). As soon as the license expires or is terminated, the disposal by entombment is disallowed by 6 NYCRR 380-4.1(b), unless:

(1) a new regulation specifically authorizing entombment is promulgated,

(2) the entombment is granted a variance from 6 NYCRR Parts 382 and 383, or

(3) the entombed facility meets the requirements of 6 NYCRR Parts 382 and 383.

D.3 Are there other issues not covered above, for the entombment option that impact Low Level Waste Compacts?

There would likely be a significant economic impact on the LLRW Compact system if entombment is made an acceptable or codified method for nuclear power plant decommissioning. Compacts attempting to site disposal facilities do consider future projections of waste volumes (including significant amounts of power plant decommissioning wastes) in the analysis of the economically viability of the proposed LLRW disposal site. In these analyses, both the activity and the volume of decommissioning wastes from nuclear reactors dominate. Allowing entombment as a decommissioning alternative would likely make it economically unattractive for a single State or small Interstate Compact to site a LLRW disposal facility.

D.4 If the entombment disposal facility option does not include GTCC waste and the disposal license is issued by an Agreement State, what compatibility categories should be assigned?

We recommend Category C, i.e., embody the essential objectives, but allow the state to add requirements and be more stringent.

STATE OF ILLINOIS
DEPARTMENT OF NUCLEAR SAFETY
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George H. Ryan
Governor

Thomas W. Ortciger
Director

May 8, 2001

Ms. Stephanie Bush-Goddard
Division of Industrial and Medical Nuclear Safety
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington D.C. 20555

Dear Ms. Bush-Goddard:

On March 7, 2001, the NRC sent "Request for Comments on an Advance Notice of Proposed Rulemaking (ANPR) and a Draft Rulemaking Plan Concerning an Entombment Options for Power Reactors (STP-01-017)" to All Agreement States. It should be obvious that reactor decommissioning is of great interest to the state of Illinois if one considers there are fourteen power reactors located in the state. Illinois' initial comments regarding entombment as a decommissioning method are provided herein along with responses to the specific questions posed.

As proposed in the ANPR notice, entombment as a reactor-decommissioning alternative is problematic. We will resist its implementation and urge its prohibition for numerous reasons including the following:

Lack of Illinois control in decision-making process - Nuclear power stations are licensed by the Nuclear Regulatory Commission. Under the license termination rule, the NRC approves the decommissioning method proposed by the licensee including the amount of residual radioactivity that would remain at the site. The entombment decommissioning method leaves a significant amount of "residual radioactivity." Illinois' standing in the decision-making process as that of an outside party with no control over the final outcome is unacceptable in the context of the possible outcomes of such decisions.

Long-term restricted land use - Since the site will contain quantities of radioactive material that do not allow the site to be released for unrestricted use, there will always be land use restrictions imposed on the site. These restrictions may be eliminated after the many centuries required for radioactive decay to occur. However, by the time that happens, the structural integrity of the containment building may have degraded such that it represents a safety hazard. Also, having these containment structures remain on the Illinois landscape and horizon in perpetuity is an unacceptable land use.

Requires a custodial agent - Since the site will have restrictions associated with its future land use, the decommissioning plan needs to identify an agent to monitor and maintain the site following license termination. For a closed, licensed low-level radioactive waste (LLRW) disposal facility, that is expected to be the state or federal government. For an entombed reactor, it is suggested that the custodial agent could be a non-governmental organization. The logic of allowing this is inconsistent with the FEIS for 10 CFR Part 61. The NRC until now has assumed that states could only be relied on for 100 years to providing institutional control. It is inconsistent to now assume that a non-governmental entity could provide institutional control for the centuries required before the site could be released for unrestricted use. It is also presumptuous to assume that the state would be willing to assume this task and long-term liability.

Inconsistent waste management policy - Contamination left behind at a decommissioned site is generally considered "residual contamination". This term implies that the contamination is minimal and removal would have been cost prohibitive. Leaving behind the reactor pressure vessel, steam generators, pumps, piping and turbines cannot rationally be considered residual contamination. It is clearly disposal of radioactive waste. Implying that it is not is arrogant elitist semantic manipulation.

The federal government has established policies regarding the disposal of LLRW. States are required by the federal Low-Level Radioactive Waste Policy Act of 1980 and the Amendments Act of 1985 to provide for the disposal of LLRW generated within their states. States were encouraged to form regional compacts to limit the number of disposal facilities created. As an incentive to form compacts, compacts were given certain rights to limit the import or export of LLRW into or from their region as well as to establish policies regarding the management of LLRW within the region. Allowing the NRC to determine where

LLRW will be disposed in a state or region is inconsistent with this waste management framework and unacceptable to the State of Illinois. Illinois, as an Agreement State, has regulatory authority over the disposal of LLRW in Illinois which we contend is no different than reactor entombment as described.

It is inappropriate for the NRC to be licensing decommissioning activities at a nuclear power station in an Agreement State especially if the result is to dispose of LLRW at the site under the guise of an entombment policy. It is understandable that the NRC licenses the plants while there is fuel in the reactor and the potential for criticality exists. However, once the fuel is removed, the Agreement States should license the decommissioning activities. The NRC has little if any, accountability to the citizens of Illinois. It should not be making the long-term land use decisions made during decommissioning. The state of Illinois should be making those decisions.

Attached are responses to the specific questions posed in the notice. Any questions you may have regarding this letter may be directed to me at 217-785-9868.

Sincerely,

Thomas W. Ortciger
Director

TWO:bac

Attachment

Response to the Specific Questions Asked in STP-01-017 ANPR for Reactor Entombment as a Decommissioning Method

A.1. Does the existing 10 CFR 50.82(a)(3) provide an adequate basis to allow periods of entombment beyond 60 years. If not, in what way should the regulations be changed?

The referenced regulation states:

> "(3) Decommissioning will be completed within 60 years of permanent cessation of operations. Completion of decommissioning beyond 60 years will be approved by the Commission only when necessary to protect public health and safety. Factors that will be considered by the Commission in evaluating an alternative that provides for completion of decommissioning beyond 60 years of permanent cessation of operations include unavailability of waste disposal capacity and other site-specific factors affecting the licensee's capability to carry out decommissioning, including presence of other nuclear facilities at the site."

If entombment were a viable decommissioning option, the regulation can be interpreted as stating that the entombment activities must be completed within 60 years of the permanent cessation of operations. The waste would obviously remain in perpetuity.

A.2. Is the license termination rule 10 CFR Part 20, Subpart E adequate to achieve license termination using an entombment approach? If not, how and why should this rule be modified?

It appears that the requirement in Subpart E to reduce residual radioactivity to ALARA levels would intuitively prohibit the use of entombment as a reactor-decommissioning alternative. Subpart E is deficient for use in licensing any decommissioning activity in that it does not specify the length of time period needed for compliance with the dose limits. While placing all the contaminated material in the containment structure may meet the dose limits in the near-term, it may not in the long-term. Given that the waste material will never be removed, the integrity of the containment structure will only degrade over time thereby allowing the increased potential for release of radioactive material to the environment.

A.3. Should entombed facilities be required to maintain some type of NRC license after the facility meet the dose criteria of the license termination rule? If so, what conditions need to prevail before the license may be terminated? What alternatives might exist for adequately managing the radioactive materials left in the entombed structure?

The ANPR was not specific, nor is Subpart E, as to what form the "legally enforceable institutional controls" would take. Given the uncertainty of those agreements and the potential that the regulation could allow for a responsible party that is not a governmental agency, some means to regulate the institutional control period is required. Without a license and some regulatory authority to enforce the license conditions, there is no reliable mechanism to ensure the provisions of the "legally enforceable institutional controls" are being complied with. However, in our view this means NRC intends to license LLRW disposal facilities in Illinois, which is unacceptable.

A.4. A new part is being considered in the regulations to establish performance objectives and requirements for licensing an entombment disposal facility. Should this option replace the license termination rule for purpose of entombment or should a licensee have a choice between using the license termination rule approach or the entombment facility license approach? Should the dose criteria for the entombment facility license be based on the license termination rule dose limits? If not, what should be the basis for those limits.

The regulatory framework for terminating a facility's license should be consistent whether the decommissioning activity is taking place under the license termination rule or an entombment approach. Both methods must be equally protective of the public health and safety. Dose criteria for reactor entombment should be just as protective as the regulations governing the disposal of LLRW. Additional requirements for preventing excessive doses due to inadvertent intrusion should be included (which may preclude the entombment of GTCC wastes).

A.5. Should the entombment facility option be available only to power reactors? If not, under what circumstances should it be applied to non-reactor licensees?

The entombment option should not be available to power reactors. Nor should it be available to non-reactor licensees. To do so would result in the unfettered proliferation of radioactively contaminated sites. This is clearly contrary to the intent of Congress in its adoption of the Low-Level Radioactive Waste Policy Act which encouraged the formation of regional compacts to limit the number of LLRW disposal facilities.

A.6. Are there other options that the Commission should consider in developing an approach to entombment that will provide for its viability while maintaining the public health and safety?

While entombment may be able to provide for the public health and safety, it does nothing to provide for the public confidence and trust. Anytime land is sacrificed because of expediency, the public loses confidence in the regulatory agencies that allow that to happen. Rather than having up to 14 entombed reactors in the state of Illinois, it makes much greater sense to have one LLRW disposal facility that is sited, designed, operated and closed with one purpose in mind, that being safely isolating the waste from the environment. Allowing wastes to be disposed (or entombed) in a location that doesn't meet the same siting criteria as a disposal facility is, unacceptable, logically inconsistent, and destroys the public confidence in the regulatory framework.

B.1. To what degree should credit be given to engineered barriers for the purposes of dose reduction to meet the license termination criteria of 10 CFR Part 20, Subpart E?

Engineered barriers should be given the same credit as the engineered barriers in a LLRW disposal facility. The projected longevity of those engineered barriers should take into consideration the increased degradation caused by continual exposure to the atmosphere.

C.1. Should material, that could be classified as GTCC waste, be considered in the entombment approach? Are there circumstances under which residual radioactivity that could be classified as GTCC be allowed to be entombed on site? If so, under what conditions?

Absolutely not. The NRC determined in developing the Part 61 regulations that GTCC waste was not suitable for near-surface disposal. Any potential incorporation of GTCC in an entombed reactor or a LLRW disposal facility should be considered on a case-by-case basis rather than a wholesale provision in the regulations.

D.1. Power reactor licensees are exclusively regulated by the NRC (under 10 CFR Part 50), even in Agreement States. The NRC consults with stakeholders, including Agreement and non-Agreement States, about regulatory actions under consideration that may impact stakeholders. What additional role, if any, should the affected States have in the license termination process based on entombment for power reactors? In addition should an Agreement State be permitted to issue a license for an entombed disposal facility?

It is not clear whether NRC has fully thought through the enormous ramifications of its proposal. NRC's query of whether Agreement States should have any more than a consultative role in the creation of LLRW Disposal sites in 24 Agreement States throughout the country indicates that it has not.

NRC should be mindful that the Atomic Energy Act's mandate that NRC retain authority and responsibility with respect to regulation of the construction and operation of nuclear power plants does not include disposal of LLRW generated at nuclear power plants. 42 USCA 2021 (c)(1). The overwhelming preponderance of the LLRW generated in the United States (by both volume and radioactivity) is, of course, generated at nuclear power plants and is disposed of at sites licensed by Agreement States. Furthermore, in an Agreement State, it is currently the Agreement State, not the NRC that has jurisdiction over disposal of LLRW at reactor sites. Reasserting NRC's Authority for Approving Onsite Low-Level Waste Disposal in Agreement States, Withdrawal of Proposed Rule. 61 Fed. Reg. 26852 (1996).

It is beneath the NRC to engage in the semantical charade of denominating long-term isolation of reactor waste as anything other than disposal. The Agreement States' authority to license disposal of LLRW at reactor sites includes authority over entombment of LLRW. Any attempt by the NRC to repeal Agreement State authority under the pretext of merely licensing the decommissioning of commercial nuclear power reactors is virtually guaranteed to be vehemently imposed by Agreement States. If it is the NRC's objective to assert permanent federal control and responsibility over reactor sites, using those sites as a multitude of sacrifice areas throughout the United States, IDNS submits that NRC should make its proposal to Congress for a full and vigorous national debate. It is inconceivable that an entombed reactor could be released for unrestricted use. Who would NRC have manage the disposal sites, the National Park Service?

D.2. Under 10 CFR Part 20, Subpart E, the entombed material is considered residual radioactivity and suitable for license termination if the dose criteria are met. However, under other statutes, such as the LLW Policy Act, the material might be considered to be low level waste. What issues exist for entombment in a State where existing State legislation prohibits LLRW disposal?

There are currently ten interstate compacts adopted under authority of the Low-Level Radioactive Waste Policy Amendments Act. The compacts have been approved by Congress and their provisions have the force of federal law. The compacts cannot be amended or repealed by administrative rule of the NRC.

Illinois and Kentucky are the party states to the Central Midwest Interstate Low-Level Radioactive Waste Compact (CMC). Several provisions of the CMC would prohibit NRC's licensing of low-level radioactive disposal under the guise of entombment at power reactor sites in Illinois.

First, Illinois and Kentucky created the compact for several purposes. Among the purposes were to limit the number of facilities required to manage LLRW generated in the region effectively and efficiently and to ensure the ecological and economical management of LLRW, including the prohibition of shallow-land burial of waste. Disposal of LLRW at 14 entombed reactors throughout the state would neither limit the number of disposal facilities nor avoid shallow-land burial of waste.

Second, an entombed reactor site would not qualify as a "regional facility" because an entombed reactor site would not have been created by a party state pursuant to designation of that state as a host state by the CMC Commission. Entombment would, however, clearly fall within the CMC's definition of disposal, which is "isolation of waste from the biosphere in a permanent facility designed for that purpose." Disposal of LLRW at a facility other than a regional facility without approval of the CMC Commission is a violation of the compact.

Third, each party state to the compact is required to prescribe and enforce penalties for violations of any provisions of the compact. To fulfill this responsibility, Illinois enacted the Radioactive Waste Compact Enforcement Act. Under that Act, disposal of LLRW at a facility other than a regional disposal facility without approval of the CMC Commission is subject to a fine of $100,000 per occurrence. A person who intentionally engages in such disposal is subject to a class 4 felony.

Fourth, as the host state for the CMC region, Illinois is responsible for developing a regional disposal facility for all generators in the region, not just nuclear power plants. Entombment of power reactor waste may satisfy the needs of the power plants but it does nothing to provide disposal capacity for non-reactor generators, including all of the generators in the Commonwealth of Kentucky. Development of a disposal site without funding for the waste from the nuclear power plants is economically impossible.

D.3. Are there other issues not covered above, for the entombment option that impact Low Level Waste Compacts?

The state of Illinois has conducted economic modeling of a proposed LLRW disposal facility to project disposal costs and determine the most economical timeframe for developing the regional disposal facility. We determined that it is

not economical to develop a regional facility until the nuclear power stations are decommissioned. This is when the waste volumes will increase and economically support the development of the facility. If these decommissioning waste streams were entombed rather than shipped for disposal, it may never be economical to develop a disposal facility. This could drastically impact all LLRW generators should there be no other disposal options available.

D.4. If the entombment disposal facility option does not include GTCC waste and the disposal license is issued by an Agreement State, what compatibility categories, as described in NRC's "Policy Statement on Adequacy and Compatibility of Agreement State Programs," published September 3, 1997 (62 FR 46517), and in NRC's Management Directive 5.9, "Adequacy and Compatibility of Agreement State Programs," should be assigned?

Compatibility level C should be assigned.

E.1. Please provide any other considerations or rule changes that the Commission should consider to facilitate license termination based on an entombment approach while maintaining the requisite protection of the public health and safety?

The Commission should take this opportunity to eliminate the entombment option for facility decommissioning. Disposing of waste in the containment structure at the nuclear power station does not make sense from a public policy standpoint. Allowing it would only increase the number of radioactively contaminated sites across the country. It is better public policy to limit the number of disposal facilities.

In addition, the nuclear power generators are collecting funds to cover the decommissioning of their stations. The funding level is based on decommissioning for unrestricted release. Entombing the waste will be significantly cheaper. What is the NRC proposing to do with the excess decommissioning funds? Would they be returned to the ratepayers who paid them in the first place, or would they represent a sudden economic windfall for the utility? It appears this rulemaking is driven by economics rather than sound public policy.